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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

MULLINS, BURTON S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2834 | |

DATE MAILED: 08/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/882,054

Applicant(s)

IWASAKI ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 28-29 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: On p.24, line 18, delete "interrupting". On line 19 delete "made" and replace with ---interrupted---.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. The claims appear to be literal translations of foreign documents and are replete with errors of grammar and syntax. For instance, in claims 1-2 and 14, change passive recitations "being made" and "being provided" to active voice, or "opposed to" to simply --opposed--.

In claim 1, change "are extended" to --extend--. Recitation "which are circumferentially arranged along the first surface, and which accommodate the coils when the coils are wound" lacks antecedent basis. Does this refer to the slots? Change "couples" to --couple--. Recitation "when the magnetic material pieces are opposed to two adjacent poles" is indefinite. Do all the pieces have to oppose two poles, or one piece two poles, for coupling to take place? Recitation "upon coil energization" is a dangling prepositional clause that is indefinite.

In claim 2, recitation "a pair of members adjoin the slot constituting a pair of poles" makes no sense. Recitation "and in which a magnetic flux..." lacks antecedent basis. Does this refer to the members or the slot? Recitation "at least a magnetic material piece" is clumsy language. Recitation "...the magnetic material piece magnetically coupling, when being approached to the slot..." makes no sense. Recitation "...through which a magnetic flux passes..., the magnetic flux, when being changed, producing a displacing force..., thereby producing a force by which one of the first member and the second member is made movable relative to the other..." is vague, confusing, indefinite functional language which makes no sense.

In claim 3, recitation "the coils constitute a plurality of phase groups such that energizing the coils is made successively group-by-group" is clumsy, indefinite language.

In claims 4-5, recitation "such that at least one of slots is placed between each of the coils, and each of the coils intersects with another coil" is clumsy and indefinite. How is a slot "placed between each coil"? Does "intersect" mean that the coils are electrically connected with one another?

In claims 6-7, insert ---the--- before "circumferential width." Change "winding each of the coils is made in the axial direction" to ---and each of the coils is wound in the axial direction---.

In claims 10-11, "therein" is vague and indefinite. Where does "therein" refer to?

In claims 12-13, recitation "in circumferential width" is vague and indefinite.

In claim 14, change "which opposes to" to ---which opposes---. In recitation "slots is placed between the poles which are adjacent to each other" it is not clear how slots are "placed." Recitation "two of the slots between which a plurality of other slots are placed are made to accommodate therein each of circumferentially arranged plural coils upon winding thereof which are to be grouped for constituting plural phases" makes no sense. Recitation "independent with" makes no sense. Functional recitation "when the magnetic material piece is opposed to the plural poles which are consecutive in the circumferential direction, the consecutive poles are magnetically coupled, the poles and wherein ends of the coils which are different in phase intersect on the pole such that the coils accommodated in the slots which are next to another are made the same in current supply polarity" makes no sense.

In claims 15-16, recitations "wherein ends of the coils which are different in phase intersect on the pole such that the coils accommodated in the slots which are next to another

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are made the same in current supply polarity” and “wherein each of the phases is constituted by grouping the coils the number of which is even” make no sense.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5 and 8-16, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Horst (US 5,111,096). Horst teaches an isolated segment switch reluctance motor comprising: a stator 12, a rotor 18, and a plurality of phase coils A1/B1/A2/B2 energized successively for rotating the rotor (Fig.3B), characterized in that the stator includes a first surface opposed to the rotor, slots (not numbered) formed circumferentially in the first surface between pole teeth 17a-17h and accommodating the coils, and a plurality of poles 17a-17h adjacent to each other; the rotor including a second surface which opposes the stator, the second surface provided a plurality of circumferentially arranged magnetic material pieces 34 which are mutually independent of each other; the magnetic material pieces 34 magnetically coupling two adjacent poles when each magnetic material piece opposes two adjacent poles (Figs.1&5); and wherein a torque is produced by a magnetic flux generated in a closed circuit (Fig.8-11) comprising two adjacent poles and the magnetic material piece placed therebetween, upon coil energization.

Regarding claims 8-9, the magnetic piece 34 comprises a "mountain" shape extending away from the stator teeth/poles 17a-17h.

Regarding claims 10-11, note groove 54 in the magnetic piece 34.

Regarding claims 12-13, the magnetic piece 34 has a bigger circumferential width than that of the pole teeth 17a-17h.

Regarding claims 14-15, the polarity of current in adjacent slots is the same, with coils A1 and B1 adjacent one another, as well as A2 and B2 (Fig.5).

Regarding claim 16, the motor of Horst comprises a two-phase motor.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horst in view of Pengov (US 6,060,809). Horst does not teach poles constructed such that wide poles and narrow poles are arranged alternately in the circumferential direction.

Pengov teaches a SR motor with staggered rotor or stator poles with wide and narrow faces for the purpose of reducing torque ripple (Fig.1, c.5, lines 56-65).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Horst and provide staggered poles per Pengov since it would have been desirable to reduce torque ripple.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
August 15, 2002